# Course progression map for 2021 commencing students

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Update version: 27 September 2021

## E6014 Master of Engineering

**Specialisation - Biological engineering**

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>CHE5886 Advanced biopolymers</th>
<th>CHE5321 Advanced bioprocess technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR 1</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>CHE5882 Biomass and biorefineries</td>
<td>CHE5322 Advanced biochemical engineering</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Part A. Common core units**
- **Part B. Specialist core units**
- **Part C. Enhancement units**

### Biological engineering enhancement units

- CHE5883 Nanostructured membranes for separation and energy production
- CHE5889 Food engineering and processing
- ENG5008 Work integrated learning *

* ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements. If you commenced the course in the July semester intake: If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.
E6014 Master of Engineering

Specialisation - Civil engineering

<table>
<thead>
<tr>
<th>Civil engineering enhancement units</th>
<th>Civil engineering specialist core units</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CIV5135 Advanced structural design</td>
<td>Below are suggested units to guide you in focusing in a field of civil engineering suited to your previous study. You may also choose freely from the civil units listed below.</td>
</tr>
<tr>
<td>• CIV5177 Road engineering Unit title change from 2022</td>
<td>Structural engineering</td>
</tr>
<tr>
<td>• CIV5301 Advanced traffic engineering</td>
<td>• CIV5885 Infrastructure dynamics</td>
</tr>
<tr>
<td>• CIV5314 Planning urban mobility futures</td>
<td>• CIV5887 Infrastructure rehabilitation and monitoring</td>
</tr>
<tr>
<td>• CIV5882 Flood hydraulics and hydrology</td>
<td>• CIV5888 Advanced computational methods</td>
</tr>
<tr>
<td>• CIV5883 Surface water hydrolgy</td>
<td>• CIV5899 Infrastructure information management</td>
</tr>
<tr>
<td>• CIV5887 Infrastructure rehabilitation and monitoring</td>
<td>Geotechnical engineering</td>
</tr>
<tr>
<td>• CIV5888 Advanced computational methods</td>
<td>• CIV5886 Infrastructure geomechanics</td>
</tr>
<tr>
<td>• ECE5146 Multimedia technologies</td>
<td>• CIV5888 Advanced computational methods</td>
</tr>
<tr>
<td>• ECE5179 Neural networks and deep learning</td>
<td>• CIV5899 Infrastructure information management</td>
</tr>
<tr>
<td>• ENG5008 Work integrated learning *</td>
<td>• CIV5887 Infrastructure rehabilitation and monitoring or CIV5148 Ground hazards engineering</td>
</tr>
<tr>
<td>• ENG5002 Engineering entrepreneurship No offering in 2022</td>
<td>Transport engineering</td>
</tr>
<tr>
<td>• MEC5882 Instrumentation, sensing and monitoring</td>
<td>• CIV5301 Advanced traffic engineering</td>
</tr>
<tr>
<td>• MEC5888 Renewable energy systems</td>
<td>• CIV5302 Traffic engineering and management</td>
</tr>
<tr>
<td>• MTE5197 Engineering with nanomaterials</td>
<td>• CIV5304 Intelligent transport systems</td>
</tr>
<tr>
<td>• MTE5883 Environmental durability and protection of metals and engineering materials</td>
<td>• CIV5314 Planning urban mobility futures</td>
</tr>
</tbody>
</table>

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Course progression map for 2021 commencing students

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**E6014 Master of Engineering**

**Specialisation - Electrical engineering**

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>ECE5881 Real-time system design</th>
<th>ECE5883 Advanced signal processing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>ECE5882 Advanced electronics design</td>
<td>ECE5884 Wireless communications</td>
</tr>
</tbody>
</table>

- Part A. Common core units
- Part B. Specialist core units
- Part C. Enhancement units

**Electrical engineering enhancement units**

- CHE5882 Biomass and biorefineries
- CHE5883 Nanostructured membranes for separation and energy production
- ECE5122 Advanced electromagnetics
- ECE5143 Optical communications
- ECE5146 Multimedia technologies
- ECE5153 Power system analysis
- ECE5156 Advanced power electronics
- ECE5178 Intelligent robotics
- ECE5179 Neural networks and deep learning
- ECE5886 Smart grids
- EN5007 Translation and commercialisation of medical technologies
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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## E6014 Master of Engineering

### Specialisation - Materials engineering

<table>
<thead>
<tr>
<th>YEAR 1 Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>Specialist core unit</th>
<th>Specialist core unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR 1 Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>Specialist core unit</td>
<td>Specialist core unit</td>
</tr>
</tbody>
</table>

Part A. Common core units

Part B. Specialist core units

Part C. Enhancement units

### Materials engineering enhancement units

- CHE5883 Nanostructured membranes for separation and energy production
- **ENG5008** Work integrated learning *
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials

### Materials engineering specialist core units

- MTE5190 Advanced materials modelling
- MTE5193 Materials and sustainability
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5882 Advanced polymeric materials
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5884 Advanced photovoltaics and energy storage
- MTE5885 Biomaterials and biomechanics
- MTE5886 Additive manufacturing of metallic materials
- MTE5887 Additive manufacturing of polymeric and functional materials

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E6014 Master of Engineering

Specialisation - Mechanical engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>MEC5883 Mechanical systems design</th>
<th>MEC5885 Energy efficiency and sustainability engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>YEAR 1</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>MEC5881 Engineering systems performance and analysis</td>
<td>MEC5884 Sustainable engineering systems</td>
</tr>
<tr>
<td>Semester 2</td>
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</tbody>
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Part A. Common core units  Part B. Specialist core units  Part C. Enhancement units

Mechanical engineering enhancement units

- ENG5002 Engineering entrepreneurship  No offering in 2022
- ENG5008 Work integrated learning  *
- MEC5156 Advanced robotics in manufacturing
- MEC5882 Instrumentation, sensing and monitoring
- MEC5888 Renewable energy systems
- MEC5897 Lean manufacturing
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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